REMARKS

Applicants would like to express their appreciation to Supervisory Examiner Matthew Bella and Examiner Sajous Wesner for the many courtesies extended during an interview on September 30, 2005, at which the undersigned and Charles Freedman were present.

Claims 2-10 remain in the application. Claims 2-10 stand rejected.

The Examiner rejected claims 2-10 under 35 U.S.C. § 112, second paragraph as indefinite because the language "wireframe can be viewed" in indefinite. The Examiner stated the phrase "can be" raises uncertainties as to whether or not the system in the claim actually performs the task it says it can perform.

Applicant respectfully request reconsideration of this rejection.

In independent claims 2, 3, and 5, the actual context is "in which wireframes can be viewed with and without texture. Thus, there is no uncertainty as to whether or not wireframes are actually viewed, but rather, the "can be" language refers to the fact that they can be viewed with and without texture.

Accordingly, applicant respectfully requests that the rejection be withdrawn.

Further, with respect to the rejection based on the second paragraph of 35 U.S.C. § 112, the Examiner states:

> "Further, claim 1 [sic- claim 2] the limitation "positioning of the neutral plane" renders the claim indefinite because the phrase "neutral plane" is not definite in the claim, nor does that Applicant make clear in the claim/specification or drawing description what is being encompassed by a "neutral plane". Clarification is required. For examination purpose, the phrase "neutral plane" is interpreted as the movement of the display plane relative to the user's viewpoint when the viewer selects a controller on the display."

The phrase "neutral plane" is well known in the art and does not need to be defined in the claims. The phrase is discussed on page 3 of the specification as follows:

> "The depth location of the point at which the left and right image points for objects at that distance coincided constitutes a "neutral plane" and when observing a fixed disparity 3-dimensional image, the neutral plane would be found at the surface of the medium of reproduction (i.e. paper or CRT display). Items that appear closer than the medium surface and those points in the image which appear behind the neutral plane would have different disparity. The loss of depth perception when disparity exceeds a certain value generally means that when zooming-in on part of a stereo image pair that disparity will become so great that depth perception will be lost.
>
> In the prior art, there is no way to control an image so as to position it either in front of or behind a neutral plane in a controllable fashion. This limits the ability to create 3-dimensional animations."

In a stereoscopic 3D viewing system that uses a single, substantially planar viewing screen to convey all image

information to a human viewer (a "plano-stereographic" viewing system), the "Neutral Plane" is defined by the locus of points within the perceived 3D imagery that appear to coincide with the physical planar surface of the viewing screen.

Some scene features in a 3D image may appear to lie beyond the viewing screen; that is they appear to be further from the viewer than the viewing screen. Other scene features may appear to be in front of the viewing screen, closer to the viewer than the viewing screen. Those scene features that appear to be "exactly" on or in the viewing screen surface are scene features that lie in the Neutral Plane. The 3D image elements that appear in the Neutral Plane do so because both left-eye and right-eye image elements that define the feature in full 3D are collocated on the screen; they are precisely superimposed at a common point on the screen.

A Neutral Plane exists for all plano-stereoscopic 3D viewing systems.

Ther is considerable benefit from adjusting the location of the neutral plane. When a human observer is viewing a true and natural 3D scene containing objects both close and more distant, the eyes move about the scene and fixate on some specific object. In doing so under conditions of good focus, two primary optical system adjustments are made that provide cues as to whether the object is "near" of "far" from the viewer. One adjustment is commonly known as "ocular convergence adjustment" (sometimes expressed as "ocular vergence", what is referred to here is the horizontal movement known as "convergence" rather than the one-up other-down eye

movement known as "vertical vergence"). The other adjustment is commonly known as eye "accommodation".

Ocular convergence adjustment is the change in convergence angle between the lines of sight for the left and right eyes. For close objects, the eyes converge more or become more "cross-eyed". For more distant objects, the eyes converge less, become less "cross-eyed until they assume parallel lines of sight for objects located at infinity.

Accommodation is the changing of the eye lens shape to focus a sharp, crisp image on the retina of the eye.

For real world viewing, the synchronization of accommodation in both eyes and ocular convergence is accomplished automatically by the human visual system and everything seems quite normal. For most plano-stereoscopic 3D viewing only objects in the Neutral Plane allow ocular convergence and accommodation to adjust as in normal real world viewing. For some plano-stereoscopic viewing systems described above, accommodation and ocular convergence never match the normal state because the left-eye and right-eye image components are never coincident on the viewing screen. The normal automatic coordination between ocular convergence and accommodation always breaks down when viewing 3D objects that appear to be in front of or behind the viewing screen. Under these circumstances, accommodation does not change because it is still necessary to focus the light originating at the viewing screen onto the retina; however, ocular convergence must change as the left and right eyes individually track separate image components.

The lack of normal accommodation changes with ocular convergence changes that occur when viewing a plano-stereographic image is an unnatural form of input to the human visual system. A viewer may experience discomfort. Even though the human observer experiences a sensation of "realistic depth of view" for all objects in the scene, a certain amount of eyestrain may develop with prolonged viewing. The worse case scenarios for eyestrain occur when the eyes have to converge too much and become "excessively cross-eyed" or when the eyes attempt to diverge and assume a "wall-eyed" gaze. Both conditions can be encountered when the stereographic 3D viewing system allows the viewer to "zooming in" and magnify certain image details that appear in front of or behind the viewing plane. The "zoom in" process causes the left-eye and right-eye image components to physically become further separated on the viewing screen, thus leading toward viewing conditions that require excessive cross-eyed or wall-eyed eye movements.

If the viewing system allows for an adjustment of the location of the Neutral Plane, the object of interest can be placed at the Neutral Plane where eyestrain is minimized.

The meaning of the term "neutral plane" is known in the art and is clear from the specification description. Accordingly, applicants respectfully request that the Examiner withdraw the rejection based on 35 U.S.C. § 112, second paragraph to the extent it is based on the term "neutral plane."

The Examiner rejected claim 2 under 35 U.S.C. § 102(e) as anticipated by Teigh et al.

The Examiner rejected claims 3-4 as unpatentable over Teigh et al. in view of McCutchen.

A detailed text search of the Teigh et al. patent shows that the word "plane" exists. However, each instance of the use of the word "plane" has nothing to do with the "neutral plane" as that term is known in the art. There is certainly no teaching or suggestion in the Teigh et al. patent of controlling positioning of the neutral plane of a stereo image with respect to a wireframe as claimed.

Similarly, a word search was conducted on the text of the McCutchen patent. There were zero hits when searching the phrase "neutral plane" and when searching the term "neutral". The word "plane" occurs only at the beginning of claim 3 and in claim 5. However, none of those usages of the word "plane" refers to a "neutral plane" in substance or application. There is thus no teaching or suggestion in McCutchen for controlling the positioning of the neutral plane of a stereo image with respect to a wireframe as claimed. Similarly, in the Brown et al. patent, cited but not applied by the Examiner, there were no occurances of the phrase "neutral plane."

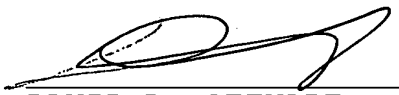
Accordingly, the Examiner has failed to establish a prima facie case of either anticipation or obviousness.

Therefore, applicants respectfully request that the Examiner reconsider the rejections and to allow the claims to issue as a patent.

Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 01-0484 and please credit any excess fees to such deposit account.

Respectfully submitted,



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